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— Prof. W. G. Peck, LL D., is writing an 'Analytical mechanics' for the use of colleges and scientific schools, embracing the course as now taught at the School of mines, Columbia college. Messrs. A. S. Barnes & Co. will publish it in the early summer.

— Messrs. Ticknor & Co. announce for publication 'The Nigritians,' division 1 of 'The social history of the races of mankind,' by A. Feathermann; also 'The Melanians,' division 2 of 'The social history of the races of mankind,' by A. Feathermann. These two learned volumes are parts of the great group which was begun by the publication of 'The Aramaeans' two years ago. When all the volumes of 'The social history of the races of mankind' shall have been published, the work will be found to be a comprehensive history of universal civilization, embracing not only the civilized and most enlightened nations of the earth that exist now, or had existed in the remotest ages, but treating equally of savage and barbarous races, tribes, and nations, such as are historically known to have existed in ancient time, and such as exist now in Africa, Oceanica, America, in the north of Europe, and in many parts of Asia.

#### LETTERS TO THE EDITOR.

\**The attention of scientific men is called to the advantages of the correspondence columns of SCIENCE for placing promptly on record brief preliminary notices of their investigations. Twenty copies of the number containing his communication will be furnished free to any correspondent on request.*

*The editor will be glad to publish any queries consonant with the character of the journal.*

*Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

#### The cause of consumption.

IN regard to the so-called 'theory of consumption' developed by Hambleton, as described in a recent number of *Science* (ix. No. 221), I think that our knowledge of the cause of tuberculosis is now so definite and precise that communications of that nature are positively pernicious, if not made with more discrimination, because they confound the cause of the disease with the favoring or retarding influences under which it may progress, and thus draw off attention from one of the most important measures which must be taken to guard against the contraction and perpetuation of the disease.

It is now definitely established that tuberculosis is caused, and caused alone, by the presence and action in the body of the bacillus tuberculosis. Tuberculosis can no more appear in the body without the previous entrance of the bacillus than a crop of corn can spring up in the soil without the previous deposition in some manner of the seed. And to gravely discuss the probability of tuberculosis originating in the body from any set of conditions not associated with the bacillus tuberculosis is precisely analogous with speculations as to the conditions of soil, climate,

etc., which could cause a crop of corn to spring up spontaneously in a field.

As your correspondent 'Medicus' points out, Hambleton's array of facts affords strong confirmatory evidence of the infectious nature of the disease, and shows the important influence on the development and progress of the disease of certain external conditions of individuals and people.

Before the discovery of the bacillus tuberculosis, such hypotheses as Hambleton's were frequently elaborated, and were useful as the best which could be done at the moment. The facts upon which they were based are still more useful to-day, but conclusions from them should not be permitted to assume a false relationship to the real causative agent in tuberculosis.

At present it does not seem probable that tuberculosis, when once definitely established in the body, can be successfully combated by the administration of drugs for the direct destruction of the bacilli, although new methods of treatment based upon this possibility are frequently suggested, and find one after another a short-lived currency. It appears very doubtful whether the body can be sufficiently saturated with any form of germicide to insure the complete destruction of the bacilli without destroying the life of the individual.

But, on the other hand, much has been, and much more may still be, done in the way of assisting the cells of the body in their natural warfare against the invaders; as by the supply of suitable foods and the furnishing of favorable hygienic and climatic conditions. Heredity is, without doubt, an important element in the origin and progress of the disease, but it is unquestionably not a directly etiological but only a secondary determining or accessory factor.

When the public and the members of the medical profession are sufficiently impressed with the overwhelming importance of the primary infection of the body with the bacillus tuberculosis—apparently in most cases from inhalation with dust of the bacillus or its spores—in the causation and perpetuation of the disease, and are thereby led to urge and practise the universal destruction or disinfection of sputum and all other discharges from tuberculous individuals, we shall have taken the first step towards what appears to be our only real and well-grounded hope of effectually stamping out the disease. The safeguards which we provide, or ought to provide, against the invasion of Asiatic cholera, consist in the destruction of the bacterium which causes it, and although far more difficult of accomplishment, owing to its constant and universal presence, this is the task to which we must address ourselves in the face of the far more important disease, tuberculosis.

In the event of an invasion of Asiatic cholera, we should indeed consider and attempt to guard against those conditions which seem to render an attack of the disease more likely, such as digestive disturbances, over-exertion, etc., and we should bring all accumulated experience to bear upon the conduct of the disease in the individual to a successful termination. But, after all, the main direction of our efforts would lie in precautions against its spread, and the speedy stamping-out of the disease by rigid disinfection of all excretory material. In other words, while the conduct of individual cases would not be neglected, we should realize that in the wider task of total eradication lay our chief duty.

Now tuberculosis is domesticated among us, and the dramatic and absorbing features of a more rapidly fatal and readily acquired disease are wanting; so that, while we are busying ourselves in the humane and worthy effort to help the stricken individual, the spread of the disease among more vulnerable persons goes steadily on, and systematic efforts towards the prevention of the distribution of infective material are almost completely ignored.

Let all the conditions which Hambleton and others urge — mistakenly, I think, as the cause of the disease — be fully considered and guarded against; let climatic, hygienic, and hereditary influences be made as favorable as possible; and let the influence of drugs be brought to bear whenever and however they safely and to good purpose may. To attend to these things is the duty of the physician. But beyond and above all this, is the problem of the total eradication of the disease. Its practical solution may and probably does lie far in the future; but it would seem unquestionable, in the light of modern science, that any systematic and intelligent effort in this direction must be based first of all on the universal recognition of the fact that a particular species of bacterium, and it alone, causes tuberculosis, although there are hosts of most important external and internal conditions which favor or retard the progress of bacterial invasion.

T. MITCHELL PRUDDEN, M.D.

New York, May 23.

#### Bassariscus, a new generic name in mammalogy.

Having lately had occasion to do with the quadruped commonly called *Bassariscus astuta*, my attention has been drawn to the fact that the generic name is pre-occupied in entomology. It is said to have been conferred by Hübner upon a genus of lepidopterous insects, 1821 or earlier. There being no synonyme of the mammalian genus, that I know of, a new name for the latter seems to be required. The above may be regarded as a diminutive of one of the several forms of a Greek word meaning fox, and the two species of the genus may be known as *Bassariscus astutus* and *B. sumichrasti*. The English equivalent would be 'bassarisk,' a term which may come into use, since we have not yet any single word in the vernacular as the name of the animal. As to the technical name of the family of bassarisks, it may be observed, that, if *Bassariscus* be untenable in this connection, then so is *Bassarididae*. The first tenable generic name in this family is doubtless *Bassaricyon* of Allen, 1876, whence it would appear that the proper name of the family is *Bassaricyonidae*.

ELLIOTT CORES.

Smithson. inst., Washington, May 14.

#### A needed invention in coal-mining.

In recommending air-jigs for separating coal from slate, I fear that Mr. Ludlow (*Science*, May 13) is on the wrong track. Two solids are readily separated by a fluid whose specific gravity is intermediate between theirs: the heavier sinks, the lighter floats. But if, as is usually the case, we must employ a fluid lighter than either, the heavier that fluid the more ready and complete the separation: hence the enormous disadvantage under which air suffers as a separating medium. Air-jigs, too, would probably break the coal much more than water.

Coal initially dry would suffer an apparently irreparable injury from absorption of water, if separated by wet jigging; but, for coal initially wet, means for using the waste water over and over appear to offer a more promising field than air-jigs.

HENRY M. HOWE.

Boston, May 17.

#### A noteworthy specimen of Devonian lepidodendron.

A noteworthy specimen of Devonian lepidodendron (*L. primaevum* Rogers?) has recently been added to the New York state museum of natural history at Albany. It is fifteen feet in length from the roots upward, measures thirteen and a half inches in diameter across the base, three inches at the broken upper extremity, and preserves in great beauty and perfection the cicatrices of the leaves, in places the narrow elongate-lanceolate foliage and the delicate rootlets.

The fossil was discovered in the Portage arenaceous shales of Naples, Ontario county, N.Y., by Mr. D. D. Luther of Naples and Mr. J. M. Clarke of Albany; and a portion of it, as much as had at that time been excavated, was described in Bulletin No. 16 of the U. S. geological survey. The continuation of the excavation added greatly to the length of the specimen, and exposed its base and roots. The trunk has been flattened in the shales and its tissue reduced to coal, but in its present condition it undoubtedly offers to paleo-botanists one of the most striking examples known of this genus of plants. It is interesting to observe, that, so wide a variation exists at different distances from the base in the arrangement of the cicatrices, one cannot but feel, upon examining the fossil, that, if it had been found in fragments taken from different spots, it would furnish all the necessary material for a half-dozen distinct species of lepidodendron, according to prevalent methods of determining these values. Moreover, towards the base the leaves are uniformly arranged on elevated longitudinal ridges, as in *Sigillaria*, showing nothing of the quincunx arrangement apparent higher up, and regarded as a diagnostic character of lepidodendron. In this region also the longitudinal ridges are interrupted by a series of varices suggestive of an equisetaceous mode of growth.

While it is to be regretted that the summit of the tree has been lost, it is a fortunate circumstance that preserved to science so fine an example of Devonian forest-growth. C.

Albany, May 18.

#### The Sonora earthquake.

In the report of the earthquake sent you a day or two ago, I think an error was made in the time stated. It should have been 2.48 local time, and 2.13 standard. Additional data and information are at hand, which I have not had time to carefully consider, but which only confirm my previous assertions. There was no great loss of life anywhere, all reports to the contrary notwithstanding. The central area of disturbance was about the Fronteras valley, and likely due to faulting. No eruptive disturbance has reliably been reported, and I can only iterate my previous assertion concerning volcanic action.

G. E. GOODFELLOW.

Tombstone, A. T., May 14.